

The syenites of the southeast coast of Norway, also, which have been studied particularly by Brögger, and which are irruptive through fossiliferous Silurian and Devonian strata, are eminently gneissic in places. They are indistinguishable in this respect from the more distinctly foliated varieties of our Laurentian gneiss.

Lehman's masterly work\* on the rocks of Saxony and other geologically similar regions has clearly established that many of the gneisses of central Europe are irruptive in their origin.

The foliated gabbros or gabbro-gneisses of the Lizard are regarded as eruptive by such eminent observers as Teall † and McMahon, ‡ though they differ as to the precise mode of the development of the foliation.

Harper § has shown that the "granite and gneissic granite" of Larn, Caernarvonshire, which was formerly held to be Archean, is in reality irruptive and of more recent age than the Upper Arenig strata :

"The actual contact of the two rocks is easily found, and the granite is seen to send out little tongues between the laminae of the shale. Specimens of the latter rock, indurated and firmly adhering to the granite, may be obtained. \* \* \* The shale is clearly altered and exhibits little spots and nodules supposed to represent the incipient development of chialtolite. Another quarry, well within the boundary of the granite, shows entangled masses of baked shales."

In a paper submitted to the International Geological Congress at its London session || in 1888, the writer quoted Dr. G. M. Dawson ¶ at some length to show how entirely the conditions which obtain between the Triassic rocks of the west coast and the younger subjacent irruptive granite are analogous to those which obtain between the rocks of the upper Archean or Ontarian system and the Laurentian granite gneiss. Dr. Dawson's account of the history of geological events in that region in post-Triassic times confirms the correctness of the writer's interpretation of the Archean of central Canada.

The interesting geognostical equivalent of the Archean on the Pacific coast is paralleled on the Atlantic coast by the great irruption of "gneissic granites" which in post-Cambrian times, possibly as late as the Devonian, have broken up through the Cambrian slates and quartzites.\*\* These "gneissic granites" are indistinguishable from many of the Laurentian gneisses.

\* Untersuchungen über die Entstehung der altkrystallinischen Schiefergesteine, Bonn, 1881.

† Origin of Certain Banded Gneisses; Geol. Mag., N. S., Decade 111, Vol. IV, 1887, p. 484.

‡ On the Foliation of the Lizard Gabbro; *ibid.*, p. 74.

§ Quart. Jour. Geol. Soc., Vol. XXXIV, 1878, p. 442.

|| Etudes sur les schistes cristallins, p. 66.

¶ Geol. Survey of Canada, Annual Report, 1887, Part B, pp. 11-13.

\*\* The Lower Cambrian rocks of Guysborough and Halifax Counties, N. S. By E. R. Faribault; Geol. Survey of Canada, Annual Report, 1886, Part P, p. 129.